International Migration and Contributions Toward Elderly Parents Left Behind: Are Parents Better Off When Their Children Migrate? *

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Abstract

This paper considers whether elderly parents remaining in Mexico receive more or less transfers in time and money from their children when one child migrates to the U.S. The analysis builds on the best response functions from Antman (2010c) where children's contributions are estimated as functions of their siblings' contributions, thus explicitly allowing for the possibility that siblings remaining in the home country may compensate for the absence of a migrant child. Using the estimates from the latter exercise, I simulate an exogenous switch in one child's migrant status to compare financial and time contributions to the elderly parent from all of his children in the case where one child migrates with the case where all children remain in Mexico. The results show that migration leads to a decrease in time contributions for elderly parents and potentially financial contributions as well, depending on the size of the family.

JEL classification: J14, O15, D13, F22
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1 Introduction

It is now well-acknowledged that international migration can have significant effects on destination and sending countries. But while there is now a burgeoning literature on the effects of migration on families left behind, most papers focus on the effects of parental migration on children remaining at home (Hanson and Woodruff, 2003; McKenzie and Rapoport, 2006; Antman 2010a, 2010b). Given the rapid aging of the population in many developing countries and the continued reliance of parents on their children for support in old-age, an important group that is often overlooked is the elderly parents of adult migrants who remain in the home country. This paper considers how the international migration of an adult child affects his elderly parent on two important margins: the total financial contribution received by elderly parents and the total hours of physical assistance received from all of his children.

Of the relatively few past papers that have addressed the specific issue of migrant transfers to parents in the home country, one example is Lucas and Stark (1985) who find that migrants with wealthier parents contribute more to their parents relative to those migrants with poorer parents. More recently, Alaimo (2006) considers whether parents of migrant children are better off in terms of time and money transfers relative to parents of non-migrants. Since the units of analysis in her study are not children, however, it is not possible to fully examine the behavior of migrant and non-migrant children within the family.

The focus in this paper on all children's transfers toward the elderly parent is important because it is reasonable to expect that children may respond to their siblings' behavior and this interaction may have effects on the welfare of their parents. In a country like Mex-

ico, migration to the U.S. may result in an increase in earnings for the migrant child and potentially a higher contribution to his elderly parent at the same time that the migrant is restricted from traveling home and thus providing personal care. If siblings' contributions are strategic substitutes, implying a negative relationship in contributions across siblings, then a lower contribution from the migrant child would be offset by siblings in the home country who would respond by increasing their own contributions. On the other hand, if siblings' contributions are strategic complements, implying a positive relationship in contributions across siblings, one child's move abroad might result not only in a reduction in the contribution of the absent sibling, but also a reduction in contributions by other siblings. Since two forms of contributions are considered in the analysis here, evaluating the total effect on an elderly parent's contribution must also include consideration of how children respond to increases in their siblings' time contribution with money contributions, and vice versa.

Antman (2010c) considers the extent to which a migrant's siblings will compensate for his absence by estimating best response functions for individual time and financial contributions as a function of siblings' contributions. Treating siblings' contributions as the outcome of a non-cooperative two-stage game where migration is determined in the first stage and contributions in the second, that paper accounts for the endogeneity of siblings' contributions by using siblings' characteristics as instrumental variables. To address concerns regarding unobserved family-level heterogeneity, IV estimates are compared with results from models including family fixed effects (both FE and FEIV). Overall, the evidence points to individuals increasing their financial contributions in response to an increase in their siblings' financial contributions, decreasing their time contributions in response to an increase in their siblings'

time contributions, and decreasing their financial contributions in response to an increase in siblings' time contributions.

The main question left unanswered, however, might also be the most critical for development economists and policymakers. Do total transfers to parents rise or fall when a child migrates? To address this question, I use the estimates from the best response functions in Antman (2010c) to explore whether the findings point to an overall positive or negative effect of migration on contributions toward elderly parents from all of their children. By conducting a simulation where I exogenously switch the migrant status of one child in a family, we can observe the consequences of migration for elderly parents explicitly allowing for the possibility that siblings may compensate for migrant absence. The results show a decrease in time and possibly even financial contributions for elderly parents, depending on the size of the family. Consequently, international migration may in fact have a negative impact on the overall well-being of elderly parents.

This paper proceeds as follows: Section 2 describes the data set and reviews the summary statistics regarding contributions toward elderly parents. Section 3 reviews the empirical strategy used in Antman (2010c), Section 4 discusses the simulation, Section 5 presents the simulation results and Section 6 concludes.

2 Data

2.1 Description

The data come from the Mexican Health and Aging Study (MHAS), a joint project between Mexico's statistical agency, INEGI, and researchers at the Universities of Pennsylvania, Maryland, and Wisconsin.[1] The MHAS is a nationally representative panel data set of Mexicans born before 1950 that began interviewing respondents in 2001 and returned to collect data from the same respondents in 2003. Respondents are asked a range of household survey questions regarding their expenditures, income, assets, and labor supply, as well as detailed questions regarding health conditions and quality of life. While the MHAS has somewhat limited information on the children of the sampled person, it does indicate whether these children are currently in the U.S.

Most importantly for the current exercise, the data set contains detailed information about financial transfers between the respondent and his children. For those respondents reporting difficulty with "Activities of Daily Living" (ADLs) which include basic ADLs and higher level "Instrumental Activities of Daily Living" (IADLs), information is also collected on time contributions from children to the elderly respondent.[2] The basic ADLs include getting in and out of bed, bathing oneself, using the toilet, eating, and walking across a room. The IADLs include preparing a hot meal, shopping for groceries, taking medications if needed, and managing money. Since these are the only measures of hourly time contributions

[1] The MHAS is publicly available at http://www.mhas.pop.upenn.edu/

[2] This restriction in the MHAS data is similar to that in other data sets used in the literature, for example, those used by Byrne, et al. (2009) and Checkovich and Stern (2002).

in the study, I limit the sample used here to families where the parent reported difficulty with at least one ADL or IADL.

More specifically, respondents who report a difficulty with ADLs are asked to list the amount of time individuals spend helping them with these tasks. Thus, the time contributions made by children in this analysis can be thought of as a measure of critical hourly help. While restricting the data set to those parents with an ADL difficulty substantially limits the number of observations to around 10% of the usable sample, focusing on this restricted group is arguably more appropriate as families with parents with these difficulties are likely to differ considerably from families where the parent is more independent. In this way, the sample used here can be thought of as a more flexible specification where I have allowed all effects to vary based on the fact that the parent has difficulties with one or more activities of daily living.

The two main variables of interest are the time and financial contributions made by children to parents. The financial variable is based on a series of questions regarding how much money the child has contributed to the elderly parent over the past 2 years.[3] Most participants that respond refer to a monthly allotment so I convert those responses using some other reference period into a monthly average. Those participants who were not sure of the amount were allowed to indicate using a pre-specified range of values. Using the continuous data as the empirical distribution, I convert these responses to the mean of the range specified. The time contribution variable is the result of questions asking how many days in the last month and how many hours per day the child spent helping the parent

[3]Financial data are converted to 2002 Mexican pesos using the national Consumer Price Index from the *Banco de Mexico*.

with any ADLs or IADLs. If a non-resident child's spouse or children helped the elderly respondent, the survey records this time contribution as deriving from the child of the elderly parent, so the time contribution can be viewed as hourly help flowing from the household of the specified child. This distinction makes the time contribution variable more consistent with the financial contribution variable which can certainly be expected to stem from the child's entire household. While the survey does not collect data on the earnings of children or transfers among children, it does collect basic information on a child's education, marital status, current migration status, and the number of his children, which are used in the analysis below. Since the estimation of best response functions requires more than one agent and complete records are needed for individuals and their siblings, I further restrict my sample to families where there are at least two siblings with non-missing data.

2.2 Descriptive statistics

Table 1 illustrates the summary statistics on contributions toward the parents in the sample. I focus here on the differences in means between parents with at least one child who is currently a migrant and parents with children who are all currently non-migrants. While the mean value for financial contributions for parents with at least one child in the U.S. is higher than financial contributions for those with no children in the U.S., the difference is not statistically significant. Similarly, the average time contributions for parents with at least one child in the U.S. is lower than average time contributions for parents with no children in the U.S., but again the difference is not statistically significant. An important point to note, however, is that parents with children in the U.S. have more children on average (7

versus 5.5). Thus, it appears important to control for the number of children in the family.

Looking at the differences in total time contributions divided by the number of children, we see that parents of migrants do appear to receive less time contributions than parents with no migrant children, (12.4 versus 20.6 hours of care), a result that is statistically significant. At the same time, the difference in average financial contribution received per child is not statistically significant. In part, this seems to be due to the fact that the variance of financial contributions in families with only non-migrant children is higher than in families where at least one child is a migrant, a detail I will return to when interpreting the simulation results below.

Another useful way of gauging the extent of the differences between parents of migrants and parents of non-migrants is by comparing the cumulative distribution functions of the total contributions going to each group, controlling for the size of the family. Figure 1 shows that the distribution of time contributions to parents with at least one child in the U.S., lies entirely to the left of the distribution of time contributions to parents with no migrant children. This suggests that the parents with at least one child in the U.S. receive lower time contributions at very point in the distribution, not just the mean. Figure 2 shows that financial contributions are not so clear-cut, with significant overlap between the distributions of parents of migrant children and parents with no migrant children.

3 Best Response Functions

Antman (2010c) estimates the following linearized versions of the best response functions for an individual child's contributions as a function of his siblings' contributions conditional

on the migration decision $m_i \in \{0, 1\}$, where i denotes the individual and j the family. I assume that the time contribution must equal zero if the child migrates, thus there are only three equations to estimate.[4] Since the siblings are assumed to care about the total value of contributions going to the elderly parent, it is assumed that the contributions of other siblings enter as a sum. Thus, we have:

$$g_{ij} = G_{-i,j}\alpha_1^1 + T_{-i,j}\alpha_2^1 + X_{ij}\beta_1^1 + u_{ij} \text{ given } m_{ij} = 1 \quad (1)$$

$$g_{ij} = G_{-i,j}\alpha_1^0 + T_{-i,j}\alpha_2^0 + X_{ij}\beta_1^0 + \xi_{ij} \text{ given } m_{ij} = 0 \quad (2)$$

$$t_{ij} = G_{-i,j}\gamma_1 + T_{-i,j}\gamma_2 + X_{ij}\beta_2 + e_{ij} \text{ given } m_{ij} = 0, \quad (3)$$

where g_{ij} and t_{ij} are individual i's financial and time contributions, respectively, to the parent in family j, and $G_{-i,j}$ and $T_{-i,j}$ represent the sum of all contributions in money and time, respectively, from i's siblings to the parent in family j. The vector of control variables, X_{ij}, includes characteristics of the individual child: a female dummy, birth order, age and age squared, four categorical variables describing education level, a married indicator, and number of children. In addition, the following control variables describing the parent are also included: a parental female dummy, parental married indicator, five indicators for difficulties with basic ADLs, parent's age and age squared, four categorical variables describing the parent's education level, a year dummy for taking the survey in 2003, and an indicator for residing in a more urban area.

To address the simultaneity, and thus inherent endogeneity, of siblings' contributions, siblings' characteristics, X_{-ij}, are used as instrumental variables since they help to predict

[4]The data seem to support this assumption, with only one percent of current U.S. migrants (6 observations) reported to give any time to parents in Mexico.

$G_{-i,j}$ and $T_{-i,j}$ but are not included directly in the equations determining g_{ij}, t_{ij}. The identification assumption is that siblings' characteristics only affect individual i's contributions through $G_{-i,j}$ and $T_{-i,j}$. In short, this amounts to assuming that in deciding on their individual contributions toward their parents, children ultimately do not take into account *why* their siblings are contributing to the extent that they are, it only matters how much siblings are actually contributing.

Due to a high fraction of zeros in contributions, the best response estimates used to conduct the simulation below are based on IV two-step tobit estimation of equations 1 through 3 as detailed in Wooldridge (2002, p.530). Antman (2010c) also compares these results with a variety of other estimates including those from IV linear and fixed effects specifications for those worried about unobserved heterogeneity at the family level, as well as the estimates with a migrant selection term which is also identified based on siblings' characteristics. The evidence points to individuals increasing their financial contributions in response to an increase in their siblings' financial contributions, decreasing their time contributions in response to an increase in their siblings' time contributions, and decreasing their financial contributions in response to an increase in siblings' time contributions. Appendix A1 shows the estimates from the IV linear and IV tobit specifications, where the standard errors in the latter are bootsrapped, clustering at the family level, using 500 replications as reported in Antman (2010c).

4 Simulation

The main question left unanswered is whether parents receive more or less contributions as a result of a child's migration. The finding of mixed results of strategic substitution and strategic complementarity in siblings' contributions makes this exercise particularly useful as it is not theoretically clear whether the consequences of migration should be dampened or amplified by siblings remaining in the home country. Estimating best response functions for migrants and non-migrants separately, however, allows me to solve the best response functions simultaneously and obtain the equilibrium contributions which represent the fixed point. To do this, I begin by considering a two-sibling family where the eldest sibling is a potential migrant. Taking the median characteristics for the two siblings and drawing an error term for each, the policy question is whether the estimated best response functions predict a higher total time contribution for the elderly parent when one sibling migrates or when both stay home. An analogous policy question concerns whether the elderly parent receives a higher total financial contribution from his children when one migrates or when both stay home.

The simulation works as follows. After establishing the median characteristics for the two children in the family, I draw a sample of 800 errors from a normal distribution with mean zero and variance equal to that found in the sample populations based on the estimated standard deviations from the three best response functions. For each draw, I compute the equilibrium total contribution to the elderly parent under two assumptions about the migration patterns of the siblings: (i) where both children are non-migrants and (ii) where

the eldest son is a migrant.[5] I then compare the equilibrium contributions toward elderly parents under the two scenarios across the 800 simulated observations to see whether, on average, the parent received more under case (i) or (ii).

To find the fixed point, I first make a guess for the initial values, the contribution of the younger sibling in terms of time and money, as a function of whether or not his sibling migrates. Given the younger sibling's contribution, I use the estimated coefficients, median values from the sample of two-sibling families, and the randomly drawn error terms to predict the elder sibling's contribution in the case where he migrates and the case where he does not. From the older sibling's predicted contribution, I then evaluate what the model predicts for the younger sibling's contribution based on his sibling's contributions, the median values for two-sibling families and the randomly drawn error terms. If these predicted values match the initial guesses, then I have arrived at the equilibrium contribution; if they have not, I revise my guess for the value of the younger sibling's contribution accordingly and repeat the exercise with the new guess.[6]. Since the average number of siblings in a migrant family is seven, I conduct an analogous simulation for a seven-sibling family where the fourth brother is the potential migrant.[7]

[5] In two-sibling families with one U.S. migrant, it is often the eldest sibling who migrates to the U.S.

[6] In practice, I define convergence to be achieved if the predicted value of the younger sibling's contribution is within 1 peso of the guess for his financial contribution and within 0.1 hour of his time contribution. The revised guess is defined to be half of the difference between the guess and the predicted value.

[7] In seven-sibling families with one male U.S. migrant, it is common for the migrant to be the fourth sibling.

5 Results

Table 2 presents the results from the simulations for a family of two brothers as well as a family of seven siblings, four brothers and three sisters of alternating sexes. Of the 800 hypothetical families in the two-sibling simulation, the average total financial contribution going to the elderly parent is significantly higher when both children remain in Mexico (1008 versus 662 pesos). In addition, the total time contribution going to the elderly parent is also significantly higher when both children are non-migrants (32 versus 16 hours). The remainder of Table 2 shows that the drop in contributions is largely due to the significant fall in contributions from the migrant child whose financial contribution goes from 593 pesos as a non-migrant to 231 pesos as a migrant and whose time contributions falls from 16.5 hours to zero. Although the second sibling compensates somewhat for these declines, on the whole it is not enough to prevent the elderly parent from feeling a decline in total contributions from her children.

Table 3 shows the results for the seven-sibling family, where there appears to be no significant difference in the total financial contribution to the parent despite the switch in the fourth child's migrant status. Note also that there are very small differences in the average total financial contributions and average total time contributions flowing to the elderly parent relative to the results from Table 2. In this case, the total financial contribution is not statistically different (1723 versus 1701 as a migrant family) but total hours of care fall from 60 to 56 (statistically significant at the 1% level). As in Table 2, the potential migrant contributes less on average in terms of time and money when he is a migrant than when he is a non-migrant, but the difference in financial contribution is small

and not statistically significant in this case. Also consistent with the two-sibling simulation is that the siblings remaining in Mexico increase their financial contributions when their brother migrates, at least for those who display statistically significant differences. Again, we are not able to rule out that time contributions of other siblings do not respond to the change in migration status because the differences in their contributions are not statistically significant. Thus, it seems that the source of the drop in total time contribution is mainly the drop in the migrant's time contribution from 3.7 hours on average to zero.

One notable difference between the results seen in Tables 2 and 3 are the level differences in individual contributions. In the two-sibling family, individual contributions appear to be much larger in magnitude compared to the individual contributions in the seven sibling family. This could indicate additional pressure on the two-sibling family when one sibling migrates because naturally the drop in total contribution going to the elderly parent will be larger in magnitude. This type of comparative static result of the effect of sibship size on contributions could also explain why the difference in total financial contributions is so large in the two sibling case while it is insignificant in the seven-sibling family. Similarly, the drop in time contributions is not as serious in the seven-sibling case because the potential migrant did not have to contribute as much when he was home. Consequently, when he leaves, his absence may result in a significant drop in time care going to the parent, but not as precipitous as if he were one of only two siblings.

It may seem surprising to some that financial contributions are not unilaterally higher when the child migrates. To make sense of this, the importance of the error term cannot be understated as the variance of the error distribution is larger for non-migrants than for

migrants.[8] Since contributions are constrained to be greater than or equal to zero, the larger variance in the distribution of the error term for non-migrants implies a higher value of financial contributions when children are non-migrants. Indeed, this was alluded to in the summary statistics where we saw that the variance of financial contributions in families with non-migrants was higher than in families with at least one migrant child.

One explanation for the higher variance for non-migrants relative to migrants is that parents in the home country may more readily lean on children that are present when they face a temporary shock. In contrast, children who are out of the country may be more likely to send constant amounts to their parents, and as a result we see a smaller variance in the error distribution for migrants. Consequently, we see that parents of migrants may very well receive less in terms of both time and money as a result of one child's migration than they would have if both children stayed in the home country. As the comparison of the two simulations has shown, another important factor to consider is the number of siblings, because in a larger family it is quite likely that individual contributions will be smaller and so one child's migration may not so deleteriously affect his parent's total contributions.

6 Conclusion

Are parents better off when one child migrates to the U.S.? As argued in this paper, this question is not straight-forward because we have to look not only at the contributions from migrant children to their parents, but also at the extent to which siblings remaining in Mexico

[8] For example, the standard deviation of the error term in the financial contribution equation for non-migrants in the 2 sibling family is 3,554 while the analog for migrants is 2,210.

respond to changes in the migrant's contributions. I address this question empirically by simulating the equilibrium contributions to the elderly parent when all children remain in the home country as well as the counterfactual when one child exogenously migrates to the U.S. The results show clear evidence that the parents are worse off in terms of time contributions received from all of their children because those children remaining in the home country do not fully compensate for the absent child who can no longer contribute time. This is true in both small and large families, with the magnitude of the drop in time contributions appearing much larger in the smaller family.

At the same time, financial contributions appear to be lower in smaller families as well, a result that is in part due to the higher variance of financial contributions from non-migrants relative to migrants. In larger families, however, where differences in contributions are not as large between the migrant and non-migrant case, the drop in financial contributions is small and not statistically significant. Since the larger family with seven children is closer to representative for the sample of parents with at least one migrant child, it could be argued that the conclusions regarding financial contributions are therefore somewhat ambiguous.

Nevertheless, given recent declines in fertility rates and the vulnerability of elderly populations in developing countries, these results still pose a cause for concern. In particular, they call into question whether elderly health outcomes will ultimately be affected by declines in contributions due to migration. In related work using the same data set, Antman (2010d, 2010e) suggests there is a causal link between poor elderly health outcomes and the international migration of adult children. Taken together, these studies suggest that governments and institutions in sending communities should be more concerned about the potentially detrimental consequences of migration for their own elderly populations.

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Figure 1: CDF of monthly hours of help to parents by child migrant status

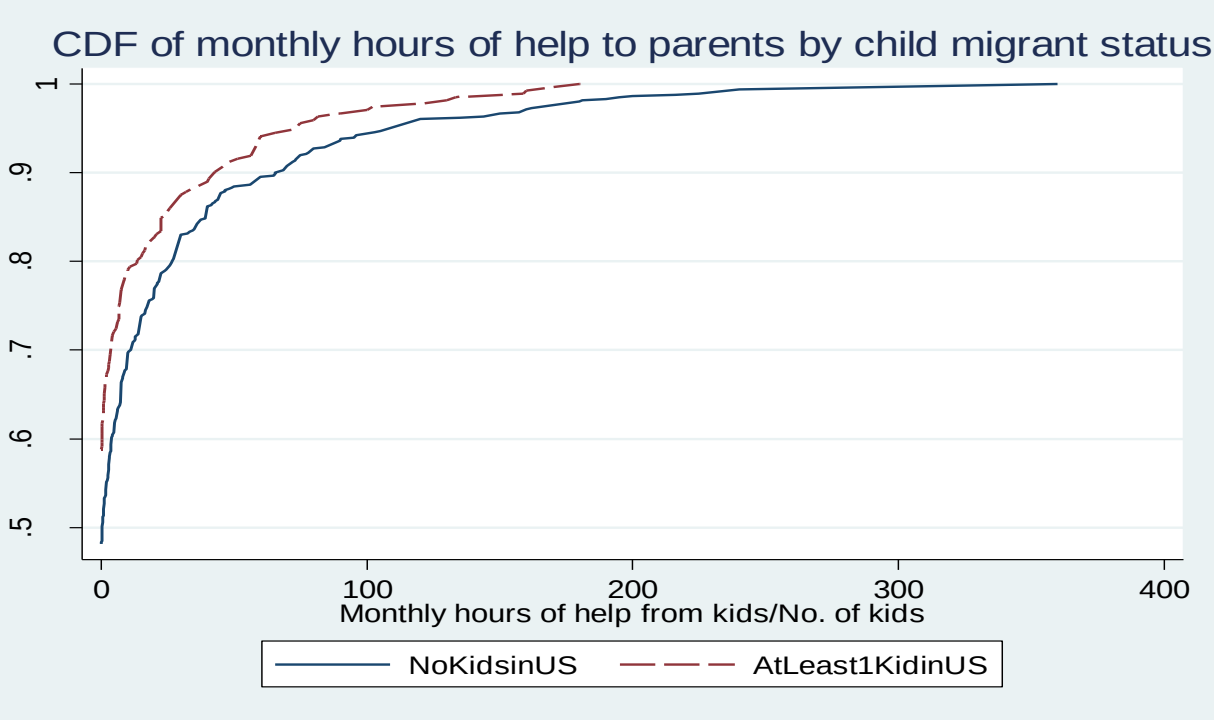

Figure 2: CDF of monthly financial help to parents by child migrant status

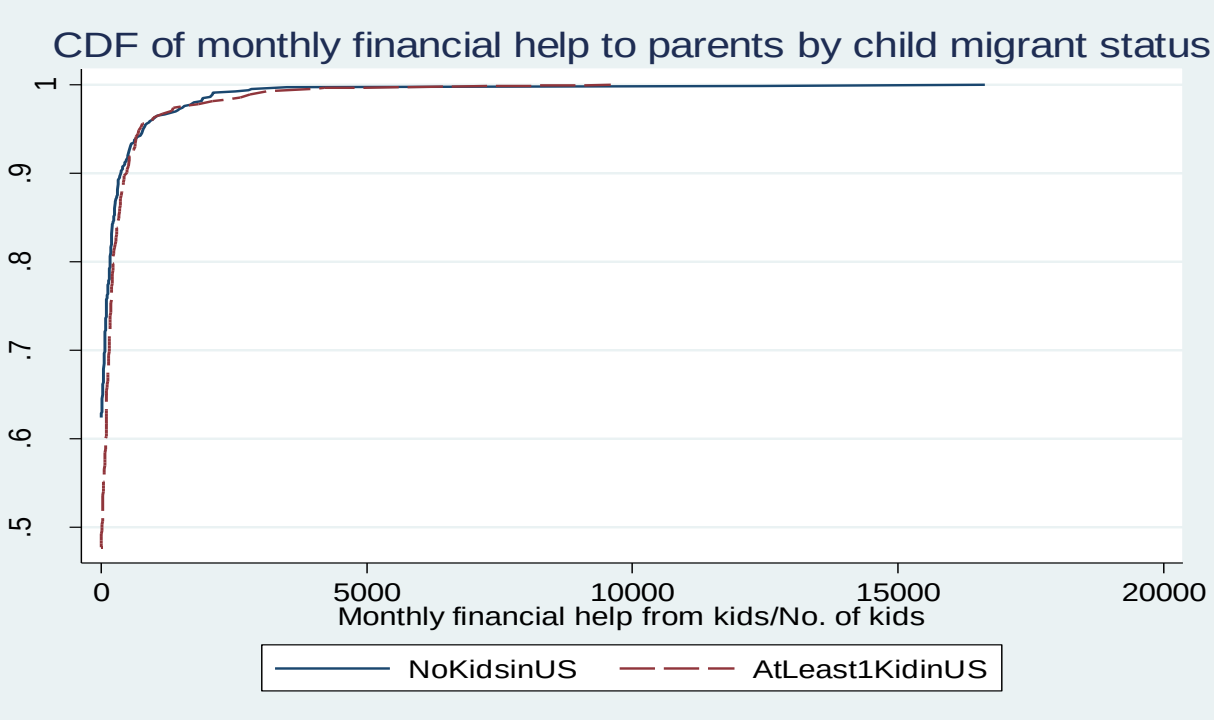

Table 1: Comparison of Parents of Migrant and Non-Migrant Children

	Combined Sample	No Migrant Children	At Least 1 Migrant Child	
Total Children's Financial Help	994.932	886.904	1257.059	
	(4548.389)	(4923.598)	(3467.630)	
Total Children's Time Help	92.231	97.035	80.574	
	(196.475)	(201.581)	(183.330)	
Total Children's Financial Help/No.Children	196.813	186.482	221.881	
	(845.238)	(887.192)	(734.458)	
Total Children's Time Help/No. Children	18.250	20.642	12.445	***
	(43.282)	(47.531)	(29.902)	
Number of Children	5.941	5.503	7.004	***
	(2.752)	(2.616)	(2.788)	
Number of Parent-Period Observations	932	660	272	

Standard Deviation in Parentheses below Mean Estimate

Difference in means significant at 10% *; significant at 5% **; significant at 1% ***

Note: This table forms part of Table 1 in Antman(2010c)

Table 2: How Does Migration Affect Elderly Contributions in a Small Family?
Simulation Results for 2 sibling family
Two Brothers; Older Brother Is Potential Migrant

	Non-Migrant Family	Migrant Family		N
Total Financial Contribution from all Siblings	1007.811	662.334	***	800
	(1857.478)	(1225.377)		
Total Time Contributions from all Siblings	32.222	16.412	***	800
	(82.441)	(58.490)		
Financial Contribution from Potential Migrant	592.782	230.814	***	800
	(1454.673)	(636.002)		
Financial Contribution from Sibling 2	415.029	431.521	***	800
	(1051.779)	(1056.449)		
Time Contribution from Potential Migrant	16.530	0		800
	(62.329)			
Time Contribution from Sibling 2	15.692	16.412		800
	(58.571)	(58.490)		

Standard deviations in parentheses below point estimates
Difference in means significant at 10% *; significant at 5% **; significant at 1% ***

Table 3: How Does Migration Affect Elderly Contributions in a Large Family?
Simulation Results for 7 sibling family
7 Siblings--4 Brothers, 3 Sisters; Middle Brother (Sibling 4) Is Potential Migrant

	Non-Migrant Family	Migrant Family		N
Total Financial Contribution from all Siblings	1722.743	1700.746		800
	(2555.868)	(2553.991)		
Total Time Contributions from all Siblings	60.217	55.889	***	800
	(106.899)	(104.362)		
Financial Contribution from Potential Migrant	254.099	221.186		800
	(884.649)	(666.973)		
Financial Contribution from Sibling 1	426.359	429.931	*	800
	(1267.163)	(1267.538)		
Financial Contribution from Sibling 2	156.964	157.767		800
	(593.776)	(596.141)		
Financial Contribution from Sibling 3	302.371	306.241	**	800
	(969.787)	(977.883)		
Financial Contribution from Sibling 5	168.046	170.353	*	800
	(703.664)	(706.985)		
Financial Contribution from Sibling 6	219.072	218.070		800
	(750.881)	(741.454)		
Financial Contribution from Sibling 7	195.832	197.201		800
	(809.128)	(810.331)		
Time Contribution from Potential Migrant	3.705	0		800
	(22.351)			
Time Contribution from Sibling 1	5.882	5.809		800
	(35.631)	(35.197)		
Time Contribution from Sibling 2	9.024	8.948		800
	(45.077)	(44.744)		
Time Contribution from Sibling 3	4.016	3.785		800
	(27.295)	(24.478)		
Time Contribution from Sibling 5	16.009	16.345		800
	(64.228)	(63.485)		
Time Contribution from Sibling 6	8.992	8.630		800
	(48.423)	(47.213)		
Time Contribution from Sibling 7	12.590	12.372		800
	(58.268)	(57.378)		

Standard deviations in parentheses below point estimates
Difference in means significant at 10% *; significant at 5% **; significant at 1% ***

Appendix Table A1: Instrumental Variables Estimates of Best Response Functions

	(1) Migrants LS Financial Help	(2) Non-Migrants LS Financial Help	(3) Non-Migrants LS Hourly Help	(4) Migrants Tobit Financial Help	(5) Non-Migrants Tobit Financial Help	(6) Non-Migrants Tobit Hourly Help
	(1)	(2)	(3)	(4)	(5)	(6)
Financial Help from Other Siblings	0.062	0.115	-0.008	0.170	0.024	-0.057
	[0.023]***	[0.032]***	[0.005]	[0.210]	[0.201]	[0.016]***
Hourly Help from Other Siblings	0.349	-0.92	-0.107	-1.926	-8.509	-1.149
	[0.893]	[0.345]***	[0.053]**	[4.419]	[4.420]*	[0.232]***
Chi-sq. p-value from overid test	0.341	0.026	0.641			
Number of Observations	608	4929	4929	608	4929	4929

Source: Antman (2010c)

Robust standard errors clustered at the family level

* significant at 10%; ** significant at 5%; *** significant at 1%

Other covariates include: Female, Birth order, Age, Age squared, 4 Education Categorical variables, Married, Number of Kids, Year dummy for 2003, Parent's Variables: Female, 5 indicator variables for Difficulty with Bathing, Eating, getting out of Bed, using the Toilet, Walking across the room, Age, Age Squared, 4 Education Categorical variables, Married, Urban Dummy

Instrumental Variables include: number of sisters, sum of siblings' birth orders, sum of siblings' ages and squared ages, number of siblings, number of siblings in 4 educational categories, number of married siblings, and number of children born to siblings